REMARKS

Status of the Application

Claims 1-16 are pending in the application, of which Claims 14-16 are withdrawn from consideration.

The Present Claims are Patentable over Kobayashi, Kajiura and Hiraoka

Claims 1-10, 12 and 13 have been rejected under 35 U.S.C. 103(a) as being obvious over Kobayashi (JP 2004/071473) in view of Kajiura (U.S. Patent No. 5,907,382) and Hiraoka (U.S. Patent Application Publication No. 20030107465).

Applicants respectfully traverse.

According to the Examiner at page 5 of the Office Action, Hiraoka discloses forming a substrate for electric and communication fields (paragraph [0002]), wherein a conductive pattern can be made (paragraph [0050]). The Examiner asserts that Hiraoka teaches that it was known in the art to use solutions of conducting polymers having a hydrophilic solvent and then immersing the irradiated sheets into the solution for the conductive polymer to impregnate the entire sheet including the irradiated portions (paragraph [0064]). According to the Examiner, Hiraoka exemplifies such a process in the examples (paragraph [0501]), and teaches that this process helps in freeing its invention from problems such as layer peeling (Abstract). Accordingly, the Examiner asserts that it would have been obvious to modify the wetting layer of Kobayashi by immersing it in its conductive polymer solution entirely, as exemplified by Hiraoka.

In addition, the Examiner asserts that the process limitations recited in independent Claim 1 would not distinguish the structure of the claimed patterned substrate from the structure that would be obtained from the combination of references cited in the Office Action. Specifically,

the Examiner asserts that none of the process limitations in Claims 1-7 impart a structural property in the end product of the claimed patterned substrate (Office Action at page 6).

In this regard, the Examiner has previously taken the position that Kobayashi discloses starting off with organic polysilanes but uses the process of hydrolytic polycondensation to form a polysiloxane layer on the substrate (see the paragraph bridging pages 9-10 of the Examiner's Answer dated October 31, 2011). The Examiner asserted that Applicants' process limitation of irradiating the polysilane layer will inherently result in the formation of polysiloxanes, and thus the structure of the claimed patterned substrate will be the same as that of Kobayashi, i.e., polysiloxane will be present in the irradiated portions.

Applicants respectfully disagree.

The Examiner cannot ignore the product-by-process limitations of Claim 1 (such as, irradiating the polysilane layer) when they impart a structural/compositional difference to the claimed product. *See, e.g., Amgen Inc. v. F. Hoffmann-La Roche Ltd.*, 580 F.3d 1340 (Fed. Cir. 2009) (holding that an accused product may meet each limitation in a claim, but not possess features imparted by a process limitation that might distinguish the claimed invention from the prior art); *In re Garnero*, 412 F.2d 276, 279 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite).

The present application (and the present claims) provide for forming a layer containing an organic polysilane and then oxidizing the layer with irradiation.

In contrast, Kobayashi forms an organopolysiloxane layer and then modifies the surface structure of the organopolysiloxane with irradiation.

One of ordinary skill in the art would understand that the organic polysilane of the present application (and the present claims) is a polymer having a -Si-Si- linkage as the main

chain. In contrast, one of ordinary skill in the art would understand that the organopolysiloxane used in Kobayashi is a polymer having a -Si-O-Si- linkage as the main chain. The organic polysilane of the present claims and the organopolysiloxane used in Kobayashi are completely different polymers, in view of substrate and property.

In addition, the Examiner refers to paragraphs [0028]-[0032] of Kobayashi as disclosing "organic polysilane" and "organopolysiloxanes." However, this is not correct. One of ordinary skill in the art would readily appreciate that a compound of the formula Y_nSiX_{4-n} disclosed in paragraph [0029] of Kobayashi is not an organic polysilane or a polymer.

Kobayashi does not teach forming an organopolysilane from an organic polysilane with irradiation. Instead, Kobayashi modifies the surface structure of the organopolysiloxane with irradiation. In contrast, according to the present application (and the present claims), the whole polymer layer is altered to a conductive polymer with irradiation, while Kobayashi forms patterns by irradiation.

According to the explanation above, Kobayashi fails to disclose or suggest the structure of the patterned substrate recited by both of independent Claims 1 and 7.

Kajiura fails to cure the deficiencies of Kobayashi.

The present application (and the present claims) provides for impregnating the layer (B) with a conducting polymer to electrically connect layer (C) and substrate (A). In contrast, Kajiura uses a coupling agent for impregnation. Kajiura does not teach or suggest that the coupling agent is a conducting polymer. Instead, generally, the coupling agent is not conductive or is not even a polymer. Accordingly, in Kajiura, the coupling agent is not a conducting polymer, and Kajiura (alone or in combination with Kobayashi and/or Hiraoka) fails to suggest the structure of the patterned substrate recited by both of independent Claims 1 and 7.

Hiraoka fails to cure the deficiencies of Kobayashi and Kajiura.

Kajiura merely discloses impregnating a porous base material with a conductive polymer. Similarly, Hiraoka shows forming patterns by irradiation in the same manner as in Kobayashi (see paragraph [0064], for example). Accordingly, Hiraoka (alone or combination with Kobayashi and/or Kajiura) fails to suggest the structure of the patterned substrate recited by both of independent Claims 1 and 7.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 1-10, 12 and 13 based on Kobayashi in view of Kajiura and Hiraoka.

The Present Claims are Patentable over Kobayashi, Kajiura and Hiraoka

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi JP 2004/071473 in view of Kajiura (U.S. Patent No. 5,907,382) and Hiraoka (U.S. Patent Application Publication No. 20030107465), and further in view of Veres (WO 2004/013922).

The Examiner concedes that the combination of Kobayashi in view of Kajiura and Hiraoka does not disclose forming photo-sensors (Office Action at page 6). The Examiner cites Veres as disclosing forming a pattern on a substrate that can be used in an organic electronic device such as organic solar cells.

Applicants respectfully traverse.

Claim 11 depends from independent Claim 1.

Veres merely discloses forming a pattern on a substrate that can be used in organic electronic devices. Veres does not cure the deficiencies Kobayashi, Kajiura and Hiraoka explained above. Accordingly, Claim 11 is patentable over the combination of Kobayashi, Kajiura, Hiraoka and Veres by virtue of its dependency on Claim 1 and the additional elements recited therein.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 11 based on Kobayashi, Kajiura, Hiraoka and Veres.

Conclusion

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local, Washington, D.C. telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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